



# ecology and environment, inc.

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International Specialists in the Environment

## MEMORANDUM

Site:	Maline Creek
ID #	MOD980631162
Break:	1.5
Other:	2-23-95

TO: Roy Crossland, EPA/DPO

FROM: David Kinroth, E & E/TATM *JCC for D/K*

THRU: Joe Chandler, E & E/TATL *JCC*

DATE: February 23, 1995

SUBJECT: Site Assessment: CertainTeed/Maline Creek, Bellefontaine  
Neighbors, Missouri  
SSID: KF  
TDD: T07-9412-016  
PAN: EMO0307SEA  
EPA OSC: Don Hamera

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## INTRODUCTION

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The Ecology & Environment, Inc. (E & E), Technical Assistance Team (TAT) was tasked by the U.S. Environmental Protection Agency (EPA) Region VII Emergency Planning and Response Branch (EP&R) under Technical Direction Document (TDD) T07-9412-016 to conduct a site assessment with asbestos sampling at the CertainTeed/Maline Creek site in Bellefontaine Neighbors, Missouri. This sampling effort was conducted as outlined in the Quality Assurance Sampling Plan (QASP) prepared under TDD T07-9410-078. Specific elements of this task included the collection of air and soil samples for asbestos analysis and documentation of site activities and conditions. A trip report detailing on-site activities and summarizing the data was requested upon receipt of the sample results. TAT member (TATM) David Kinroth was designated as the TAT project manager and Don Hamera the EPA on-scene coordinator (OSC).

## BACKGROUND

The CertainTeed/Maline Creek site is located at 600 St. Cyr Road in Bellefontaine Neighbors, Missouri (Attachment A). Bellefontaine Neighbors is a suburban city in north St. Louis County. The geographic coordinates of the site are 38°44'03" N latitude and 90°13'12" W longitude. The site consists of the former CertainTeed Transite Pipe Plant property at 600 St. Cyr Road and the former GAF Transite Plant property at 9215 Riverview Boulevard, adjacent to the former CertainTeed property to the south-southeast. The area surrounding the site is

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industrial and residential and is in the city limits of Bellefontaine Neighbors and Riverview, Missouri. Maline Creek flows south-southeast along the southern boundary and eventually empties into the Mississippi River approximately three-fourths of a mile downstream from the site. The area directly south-southeast of Maline Creek along the site is a residential subdivision and there is a nursing home 350 feet northwest of the site.

CertainTeed Corporation manufactured asbestos-cement (transite) pipe at this site from the mid 1920s until May 11, 1979, when manufacturing operations ceased. The neighboring GAF Transite Plant also ceased operation sometime in 1979. Up until that time, both facilities reportedly used the land between their plants as an open dump for scrap asbestos and settled solids from process wastewater. In February 1979, both companies hired the same consulting engineering firm, Reitz & Jens, to begin preparing closure plans for CertainTeed and GAF to minimize the potential for adverse environmental impact and to comply with Missouri Solid Waste Management Law. Subsequent plans approved by the Missouri Department of Natural Resources (MDNR) included reworking the material to an acceptable slope, applying an earthen cover of at least 12 inches, seeding the site to establish vegetative growth, and constructing a rip-rap rock cover on the creek slope to prevent erosion.

A site inspection conducted by MDNR on May 13, 1980, confirmed that the site was in basic conformance with the approved closure plans, however it was noted that broken pieces of asbestos-containing pipe were scattered along the undisturbed creek bank upstream of the rip-rap area, south of the former CertainTeed facility. This condition was not determined to pose a significant threat due to the wooded nature of the creek bank at that time. The CertainTeed Corporation sold the property to the current owner, P.G. Investments, in September 1981. P.G. Investments, owned and operated by Phillip and Gerald Kootman, subsequently opened Branch Metal Processing Company at the site. In January 1982, transite pipe material became visible along the creek bank after the Metropolitan St. Louis Sewer District (MSD) conducted tree and brush removal along the creek to facilitate future creek channelization efforts. This left the material subject to sloughing and weathering with stream flow fluctuations. MDNR recommended at that time that any removal and stabilization efforts be coordinated with MSD.

In May 1982, MSD proposed a cleanup of the creek bank. MDNR approved the plan with the condition that the waste be disposed at an approved sanitary landfill. The cleanup efforts began in August 1982. Several loads of scrap asbestos containing material were hauled to West Lake Sanitary Landfill in Bridgeton, Missouri. According to MDNR reports, when these efforts ceased there was still approximately 1000 square feet of scrap asbestos pipe visible along the upper portion of the creek bank.

The EPA Environmental Monitoring and Compliance Branch (EMCM) conducted inspections of the former CertainTeed and GAF facilities in May and June of 1988 respectively. Exposed transite pipe and board was observed along the creek bank and on the surface near the covered waste

piles at both facilities and transite pipe was observed in the creek bed along the CertainTeed property. Samples of the exposed materials collected during these inspections indicated the materials contained up to 25% chrysotile and 15% crocidolite asbestos. Followup site assessment activity was conducted at the site in March and September 1992, by the E & E/TAT following a congressional inquiry to EPA initiated by a citizen complaint. Further sampling was conducted and photographic and video documentation of the site was produced. Sample results from this effort indicated exposed insulation, transite pipe and sheeting materials containing up to 85% chrysotile and 15 % crocidolite asbestos. The exposed materials appeared to be weathering and becoming more friable and scrap materials were observed accumulating in the creek bed as the pieces were dislodged from the creek bank through erosional processes.

During the flood event in July and August of 1993, swelling of the Mississippi River caused a back up of Maline Creek, flooding the common area and parts of the subdivision just south of the site. Approximately 70 homes were flooded to varying degrees during the peak crest period. Approximately 20 of the affected homes were scheduled for buyout by the Federal Emergency Management Agency (FEMA) and were under demolition during this sampling effort. Additional homes were eligible for the buyout; however, the residents refused. This flood event potentially transported asbestos containing materials from the site, increasing the potential for contamination of the affected areas above and beyond that which may have been present prior to the flood.

A contractor hired by FEMA conducted soil sampling for asbestos in the buyout area in November, 1994. Thirty-one soil samples were collected during this effort with split samples provided to MDNR and EPA. TAT was tasked to procure a contract laboratory for analysis of these split samples by transmission electron microscopy (TEM). Of these 31 split samples, seven samples had chrysotile asbestos present at greater than one percent, 10 samples had chrysotile asbestos present at trace levels less than one percent, and 14 samples were reported as none detected. EPA defines material greater than one percent asbestos as asbestos containing material (ACM).

TAT was tasked with this sampling effort to provide an assessment of the potential threat from exposure to asbestos fibers to residents living in the subdivision near the site. The target population in this assessment were the residences near the FEMA buyout area and the areas affected by the flooding in 1993, including all residents in the subdivision southeast of the site. The sampling was conducted knowing that contamination by asbestos fibers at these residences may have occurred due to entrainment by air from the site prior to the flood event. TAT was tasked to perform this sampling in accordance with the QASP, "Quality Assurance Sampling Plan for the Collection of Air and Soil Samples From Residential Areas Near the CertainTeed/Maline Creek Site for Asbestos Analysis", prepared under TDD T07-9410-078. As specified in this QASP, TAT was tasked to subcontract the services of an Asbestos

Hazards Emergency Response Act (AHERA) certified air-monitoring technician to assist with the air sampling network design and sample collection.

#### **SITE ACTIVITIES**

On Wednesday January 4, 1995, TATM David Kinroth met at the site with EPA On-scene Coordinator (OSC) Don Hamera and Tom Kruse, Environmental Specialist with the MDNR Air Pollution Control Program, to discuss the final design of the air sampling network. Also present were Darren Wilhite and Matt Burcham from Environmental Options (EO), the subcontractor selected to provide the AHERA certified air monitoring technician to assist with the air sampling. A site tour was conducted and then all personnel proceeded to the Bellefontaine Neighbors City Hall to finalize the network design. The QASP directed the collection of a soil sample from each air sampling location, from additional locations in the flood zone, and at remote and background locations outside the flood zone. Following this meeting, OSC Don Hamera and Tom Kruse (MDNR) proceeded to the selected residential sampling locations to acquire access for sampling. Access to sample at the former CertainTeed property, in the FEMA buyout demolition area, and on the commons area south of Maline Creek along the subdivision had already been obtained.

The air sampling activities began at 0700 hours on Thursday January 5, 1995. The sampling team consisted of TATM David Kinroth, EPA/OSC Don Hamera, and initially two air sampling technicians from Environmental Options, Matt Burcham and Kyle Uber. The first task was to set up and start the air sampling pumps at all locations. TAT and the OSC drove light duty fence posts into the ground at each location while the air sampling technicians set up the personal sampling pumps at one meter above the ground, conducted the initial calibration of the pumps with a rotameter to approximately three liters per minute sampling rate, and started the samplers. The sample pumps were to run for approximately eight hours and to provide a minimum sample volume of 1200 liters. The collection medium for the air samples was a 25-mm diameter cassette with an open-faced 50-mm electrically conductive extension cowl and a 0.45 micrometer mixed cellulose ester filter membrane.

Once all the air sampling pumps had been initiated, Kinroth, Hamera, and Matt Burcham continued site activity with the collection of soil samples. Soil samples were collected at all 13 air sampling locations, as well as from nine additional locations within and beyond the perimeter of the flood affected area. All soil samples were surface grab samples collected by scraping the soil surface with a stainless steel spoon within a 625 square centimeter area. The samples were placed in an aluminum pie pan, homogenized, and then packaged in a 4-ounce glass jar for delivery to the lab. The soil sampling was conducted in level D personal protective equipment (PPE). In addition to the 22 surface soil bulk samples, the OSC included a bulk sample of demolition material from a home in the FEMA buyout area that had been collected by Tom Kruse (MDNR) the previous day.

At 1525 hours on January 5, 1995, the air monitoring technician, Matt Burcham (EO), began collecting the air sample cassettes from the sample pumps in the order in which they had been initiated. TAT and the OSC followed behind removing the fence posts and other associated hardware. At each location a final rotameter flow rate reading was taken of the sample pump with the sample cassette intact prior to its removal from the pump. This final flow rate was then averaged with the initial flow rate to provide an average rate over the sampling period. The average rate was then multiplied by the sample duration to calculate the final sample volume in liters. Sample volumes ranged from 1206 to 1416 liters. Two field blank air samples and one lab blank sample were also included for analysis along with the 13 field samples collected. TAT was provided with a comprehensive air sampling summary sheet upon completion of the days activity at 1730 hours. TAT took possession of all air and soil samples for delivery to the lab for asbestos analysis.

Kinroth delivered the samples to the selected contract lab, Environment & Energy Consultants, Inc., an affiliate of Industrial Testing Laboratories, Inc., in St. Louis, Missouri, on Friday January 6, 1995. Standard sample tagging, field sheet, and chain-of-custody procedures were followed. All air samples were submitted for transmission electron microscopy (TEM) asbestos analysis following AHERA protocol, which will detect asbestos structures less than five micrometers and potentially as small as 0.1 micrometers. For comparative purposes, two of the air samples were also submitted for analysis following both the NIOSH 7400 and 7402 methods. The NIOSH 7400 method is a phase contrast microscopy method which provides an index of airborne fibers used for estimating asbestos concentrations, although it does not differentiate between asbestos and other fiber types. The NIOSH 7402 method is an asbestos fiber specific TEM method intended to compliment the results obtained in method 7400. This method counts fibers greater than five micrometers in length, with a length-width aspect ratio greater than 3 to 1. All soil/bulk samples were submitted for TEM asbestos analysis using a modification of the Chatfield Method for the analysis of resilient floor tile, which can be modified slightly to analyze samples other than floor tiles. For comparative purposes two of the soil samples were also submitted for polarized light microscopy (PLM) asbestos analysis. Under 40 CFR Part 763 the EPA defines any sample or material containing greater than one percent asbestos as asbestos containing material (ACM).

#### **FOLLOWUP ACTIVITIES**

The sample results were received from Environment & Energy Consultants, Inc., on January 25, 1995. The results are summarized in attachment C to this report. A discussion of the results is presented below.

Asbestos structures were detected in only three of the air samples collected, MLC-006, MLC-007, and MLC-008, analyzed by the TEM AHERA method. Sample MLC-008 was collected from the backyard at 813 Lebon in the FEMA demolition area, sample MLC-007 was collected just north of the demolition area at the southeast end of the commons area, and sample MLC-006 was collected from the center of the commons area north of the demolition area. Refer to the air sample location map (Attachment C)

for the locations of these samples. The results were 35.8 structures/mm<sup>2</sup>, 17.9 structures/mm<sup>2</sup>, and 17.9 structures/mm<sup>2</sup>, for samples MLC-006, MLC-007, and MLC-008 respectively. It should be noted that the wind was out of the south all day on the day of collection, and that demolition activities were taking place in the demolition area during the sampling period. Under the AHERA regulations, 70 structures/mm<sup>2</sup> is the background level used for asbestos abatement in schools.

Of the 23 soil/bulk samples collected only two had chrysotile asbestos levels reported greater than one percent, and therefore would be considered asbestos containing material (ACM) by EPA. These samples were MLC-019, taken on the north bank of Maline Creek on the former CertainTeed property, and MLC-039, the sample of demolition material collected by Tom Kruse (MDNR) from the home at 9224 Lebon in the FEMA demolition area. It should be noted that pieces of transite were observed on the soil surface at the point of collection of sample MLC-019. The remaining soil samples had trace levels of chrysotile asbestos less than one percent in seven samples and 14 samples were reported as none detected. Refer to the soil/bulk sampling location map (Attachment C) for the sample locations. Comparison of the soil sampling results with the subdivision plat map showing the FEMA demolition area and other areas affected by flooding (Attachment B) does not reveal any discernible pattern of asbestos in soil associated with the flooding.

#### **SUMMARY**

The TAT was tasked by Region VII EPA/EP&R to provide technical assistance to the OSC during a site assessment at the CertainTeed/Maline Creek asbestos site in Bellefontaine Neighbors, Missouri. TAT subcontracted the services of an AHERA certified air monitoring technician to assist with the collection of 13 air samples for asbestos analysis and collected 23 soil/bulk samples for asbestos analysis during this effort in accordance with the QASP previously prepared under TDD T07-9410-078. The sampling was completed on January 5, 1995, and the sample results were received from the contract lab on January 25, 1995.

#### **REFERENCES**

Chatfield Technical Consulting Limited - Standard Operating Procedure  
SOP-1988-02 Rev. 1: Analysis of Resilient Floor Tile.

Ecology & Environment, Inc., Technical Assistance Team, May 8, 1992.  
CertainTeed Transite Pipe Site Assessment, TDD T07-9203-012, submitted to U.S. EPA Region VII Emergency Planning and Response Branch, Kansas City, Kansas.

Ecology & Environment, Inc., Technical Assistance Team, September 21, 1992. CertainTeed-Maline Creek Site Assessment, TDD T07-9209-003, submitted to U.S. EPA Region VII Emergency Planning and Response Branch, Kansas City, Kansas.

Ecology & Environment, Inc., Technical Assistance Team, March 14, 1994.  
Maline Creek Site Assessment, TDD T07-9402-015, submitted to U.S.  
EPA Region VII Emergency Planning and Response Branch, Kansas  
City, Kansas.

Missouri Department of Natural Resources, Waste Management Unit, August  
28, 1984, Preliminary Assessment-Branch Metal Processing Company,  
3012 Summary, Case 534.918.

U.S. Environmental Protection Agency, 1988, Environmental Monitoring and  
Compliance Branch, Inspection Report on the CertainTeed Transite  
Pipe Plant, St. Louis, Missouri.

U.S. Environmental Protection Agency, 1988, Environmental Monitoring and  
Compliance Branch, Inspection Report on the GAF Transite Plant, St.  
Louis, Missouri.

#### **ATTACHMENTS**

Attachment A - Site Location Map  
Site Sketch Map

Attachment B - Site Aerial Photograph  
Subdivision Plat Map; Areas Affected by Flood

Attachment C - Sample Data Summaries; Sample Location Maps;  
Shipping Records; Field Sheets

Attachment D - Photographic Record